

ONLINE APPENDIX

The replication dataset is available on our personal homepages: <http://www.unc.edu/~hooghe> and <http://www.unc.edu/~gwmarks>.

A. MEASURING REGIONAL AUTHORITY

The instrument evaluates individual tiers of government (or individual regions in asymmetric arrangements or with a special autonomous statute) on an annual basis across eight dimensions of regional authority. Primary sources (constitutions, legislation, statutes) are triangulated with secondary literature and consultation of country experts to achieve reliable and valid estimates (Hooghe et al 2010). This study encompasses all levels of government below the national level with an average population greater than 150,000 in 39 democracies over the period 1950-2006. Individual regions that have a special statute are included even if they do not meet the population criterion. The coding scheme below sets out eight dimensions that constitute the latent variable of regional government.

Table 1 reports the principal components analysis which reveals that the dimensions are closely associated with the domains of self rule and shared rule, but that 68 per cent of the variance across the dimensions is shared. The Cronbach's alpha across the dimensions for 39 countries in 2006 is 0.93.

Table A.1: Factor Analysis of Regional Authority

Components	Single-factor solution	Two-factor solution:	
		Self-rule	Shared rule
Institutional depth	0.86	0.96	0.55
Policy scope	0.90	0.96	0.63
Fiscal autonomy	0.83	0.83	0.64
Representation	0.82	0.95	0.47
Law making	0.81	0.54	0.94
Executive control	0.83	0.68	0.81
Fiscal control	0.82	0.55	0.93
Constitutional reform	0.74	0.55	0.86
Eigenvalue	5.46	5.46	1.21
Explained variance (%)	68.27		82.80
Factor correlation			0.59

Note: Principal components factor analysis, oblimin non-orthogonal rotation, listwise deletion; n = 39 (country scores for 2006). For the two-factor solution, the highest score for each dimension is in **bold**. Results for any other year in the data set (1950–2006) are similar.

A) SELF RULE

1) *Institutional depth*

Four categories are distinguished. The first is a null category where there is no functioning general-purpose regional administration. The second is described by the Napoleonic term, *déconcentration*, which refers to a regional administration that is hierarchically subordinate to central government. A deconcentrated regional administration has the paraphernalia of self governance—buildings, personnel, a budget—but is a central government outpost. The final two categories distinguish among regional administrations that exercise meaningful authority. The more self-governing a regional government is, the more its relationships with the central government are lateral rather than hierarchical. The fundamental distinction here is whether regional self-government is, or is not, subject to central government veto (Falletti 2010; Inman 2008).

Institutional Depth	
0:	no functioning general-purpose administration at the regional level;
1:	deconcentrated, general-purpose, administration;
2:	non-deconcentrated, general-purpose, administration subject to central government veto;
3:	non-deconcentrated, general-purpose, administration not subject to central government veto.

2) *Policy scope*

This dimension is concerned with regional authority over policy making (Brancati 2006; Keating 2001; Peterson 1995; Sorens 2010). Policies are grouped into five areas: economic, cultural-educational, welfare, constitutive and coercive policies (residual powers, police, own institutional set-up, local government), and immigration and citizenship. Regional governments are scored on whether they exercise authority in none, one, or more than one of the first four policy areas. The final policy category taps whether a regional government co-exercises authority over membership in its community, i.e. in immigration and citizenship policies.

Policy Scope

- 0: very weak authoritative competencies;
- 1: authoritative competencies in a), b), c) or d)
 - a) economic policy;
 - b) cultural-educational policy;
 - c) welfare policy;
 - d) one of the following: residual powers, police, own institutional set-up, local government
- 2: authoritative competencies in *at least two* of a), b), c), or d);
- 3: authoritative competencies in d) and at least two of a), b), or c)
- 4: region meets the criteria for 3 plus authority over immigration or citizenship.

3) *Fiscal autonomy*

Fiscal autonomy is evaluated in terms of a regional government's authority to set the base and rate of minor and major taxes in its jurisdiction (OECD 1999; Rodden 2004; Schakel 2008). A schema developed by the OECD (1999), which distinguishes two notions of authority (control independent from central government, and shared rule with central government), and three areas of control (base, rate, revenue split), is drawn on to develop a simplified schema that produces (a) an annual (not decennial) measure, (b) for particular levels of government (not aggregated across subnational levels) that (c) is conceptually close to the thing to be measured: i.e., authority on fiscal matters. We assess a regional government's tax portfolio as a whole by distinguishing between major and minor taxes and within these, between the capacity to control base and rate, or rate only.

Fiscal Autonomy

- 0: the central government sets the base and rate of all regional taxes;
- 1: the regional government sets the rate of minor taxes;
- 2: the regional government sets the base and rate of minor taxes;
- 3: the regional government sets the rate of at least one major tax: personal income, corporate, value added, sales tax;
- 4: the regional government sets the base and rate of at least one major tax.

4) *Representation*

Regional authority with respect to representation is conceived as the capacity of regional actors to select regional office holders: in the case of legislators, by indirect election by subnational office holders or by direct election in the region; in the case of an executive, by a mixed system of a regional/central dual executive or a regional assembly.

Assembly	
0:	the region has no regional assembly;
1:	the region has an indirectly elected regional assembly;
2:	the region has a directly elected assembly.

Executive	
0:	the regional executive is appointed by central government;
1:	dual executive appointed by central government and the regional assembly;
2:	the executive is appointed by a regional assembly or is directly elected.

B) SHARED RULE

The index distinguishes four avenues for regional participation in national decision making. A region may participate in making national law through its representation in the national legislature, usually in the upper chamber. A regional government may share executive responsibility with the national government for implementing policy. A region may co-determine the distribution of tax revenues in the country as a whole. Finally, and most importantly, a regional government may exercise authority over the constitutional set up in the country or, in the case of a special autonomous region, over its own constitutional relationship with the center.

1) *Law making*

Law making assesses a) the role of regions in structuring representation at the national level (i.e. in the second legislative chamber); b) whether regional governments are directly represented in the second

chamber; c) whether regions have majority or minority representation there; and d) the legislative scope of the second chamber.

Law Making

0.5 for each of the following characteristics:

- regions are the unit of representation in the legislature, i.e. the distribution of representation is determined by regional weights, rather than 'one citizen, one vote' in the country as a whole;
- regional governments designate representatives in the legislature;
- regions at a given level have majority representation in the legislature;
- a legislature with regional representation has extensive legislative authority, i.e. can veto ordinary legislation or can be overridden only by a supermajority in the other chamber

2) *Executive control*

Executive control taps the possibility that regional executives have routine meetings with the central government and whether these are advisory or have veto power (Wright 1988). To score positively on this scale, such meetings must be routinized, not *ad hoc*, and to score the maximum, such meetings must be authoritative—they must reach decisions that formally bind the participants.

Executive Control

- 0: no routine meetings between central government and regional governments to negotiate policy;
- 1: routine meetings between central government and regional governments without legally binding authority;
- 2: routine meetings between central government and regional governments with authority to reach legally binding decisions.

3) *Fiscal control*

This refers to the role of regions in negotiating or, at the extreme, exerting a veto, over the territorial distribution of national tax revenues. Shared rule on taxation is a special case of legislative or executive shared rule. Yet fiscal extraction and allocation are consequential enough to be considered separately.

Regional governments may influence the distribution of national tax revenues, including intergovernmental

grants, directly in the context of intergovernmental meetings, or indirectly via representatives in a legislature with regional governmental representation.

Fiscal control

- 0: regional governments or their representatives in the legislature are not consulted over the distribution of tax revenues;
- 1: regional governments or their representatives in the legislature negotiate over the distribution of tax revenues, but do not have a veto;
- 2: regional governments or their representatives in the legislature have a veto over the distribution of tax revenues.

4) *Constitutional reform*

Constitutional reform assesses authority over the rules of the game (Amoretti 2004; Bednar 2009; Watts 1998). The schema distinguishes between regional actors (i.e. electorates or regionally elected representatives) and regional governments. Since the purpose of the measure is to assess the extent of regional *government* authority, the role of the latter is given more weight than that of the former. So the questions asked are whether the central government or a unitary national electorate can unilaterally reform the constitution; do they need the assent of regional electorates or their representatives; or must reform gain the cooperation or assent of regional governments?

Constitutional Reform

- 0: the central government and/or national electorate can unilaterally change the constitution;
- 1: a legislature on the principle of regional representation must approve constitutional change; or constitutional change requires a referendum based on equal regional representation (i.e. approval in a majority of regions);
- 2: regional governments are a directly represented majority in a legislature which can do one or more of the following:
 - postpone constitutional reform
 - introduce amendments
 - raise the decision hurdle in the other chamber
 - require a second vote in the other chamber
 - require a popular referendum
- 3: a majority of regional governments can veto constitutional change.

B: VARIABLE MEASUREMENT, DESCRIPTIVE STATISTICS AND ADDITIONAL ROBUSTNESS TESTS

Table B.1: Variable Measurement (Table 3)

Population	Annual figures in '000s, \log_{10} . <u>Source</u> : <i>Penn World Table</i> 6.3 (Heston et al. 2009).
Area	Annual figures in '000 km ² , \log_{10} . <u>Source</u> : <i>Penn World Table</i> 6.3 (Heston et al. 2009).
Ethnicity	<p>The probability that two individuals selected at random from the country's population will be from different ethnic groups. Denoting population shares of ethnic groups in a country as $p_1, p_2, p_3, \dots, p_n$, the ethnic fractionalization index is</p> $F = 1 - \sum_{i=1}^n p_i^2$ <p>Fearon's estimate provides one time point for the postwar period. Only countries where ethnic difference is mostly or wholly territorially concentrated according to the <i>Minorities at Risk</i> dataset (2009) receive a value different from zero. <u>Source</u>: Fearon (2003); available on http://www.stanford.edu/~jfearon/, accessed March 2011.</p>
Inequality	<p>Coefficient of variation (CV) of regional GDP per capita. The measure is standardized and calculated as follows:</p> $CV_U = \frac{\sqrt{\frac{\sum_i (y_i - \bar{y}_U)^2}{N}}}{\bar{y}_U}$ <p>where y_i is the income per capita of region i, N is the number of regions and \bar{y}_U is the mean per capita GRDP (unweighted by population) in a country:</p> $\bar{y}_U = \frac{1}{N} \sum_i y_i$ <p>There is no single year for which data are publically available for all countries. We use 2000 or nearest year.</p> <p><u>Source</u>: Regional GDP per capita data from <i>Eurostat</i> website for EU-27, Croatia and Macedonia (accessed in March 2011); OECD data for non-EU democracies (accessed in March 2011); Russia from Benini & Czystewski (2007). For a discussion of the coefficient of variation and other measures of regional inequality, see Shankar & Shah (2001).</p>
Affluence	Annual real gross domestic product per capita, current price. \log_{10} . <u>Source</u> : <i>Penn World Table</i> 6.3 (Heston et al. 2009).
Democracy	<i>Freedom House</i> index for each country-year since 1972. Values estimated by the authors prior to 1972. The index sums scores for political rights and civil liberties on 7-point scales from 1=most democratic to 7=least democratic. Recoded so that high values indicate more democracy. <u>Source</u> : http://www.freedomhouse.org , accessed in March 2011.
Regional parties	Proportion of seats in the national parliament for regional parties on an annual basis. Non-election years take on the value of the most recent election year prior. A party is regional when it has an exclusively regional electoral base. <u>Source</u> : Party list provided by Arjan H. Schakel and updated by the authors.

Table B.2: Summary Statistics for the Regional Authority Index)

Measure/Variable	Mean	St.Dev.	Min	Max
<i>Measures of Regional Authority</i>				
Institutional Depth	2.08	1.48	0	5.76
Policy Scope	1.68	1.58	0	5.00
Fiscal Autonomy	1.41	1.55	0	4.94
Representation	2.77	2.29	0	7.97
Law Making	0.43	0.68	0	2.00
Executive Control	0.31	0.60	0	2.00
Fiscal Control	0.40	0.71	0	3.00
Constitutional Reform	0.80	1.34	0	5.98
<i>Independent Variables</i>				
Population	6.96	0.75	5.16	8.48
Area	2.21	0.93	-0.50	4.23
Ethnicity	0.12	0.20	0.02	0.60
Inequality	0.24	0.13	0.00	0.62
Affluence	3.82	0.47	2.42	4.82
Democracy	12.1	1.60	3.00	13.00
Regional Parties	0.03	0.12	0.00	1.00

Table B.3: Correlation Table for the Measures of Regional Authority

	ID	PS	FA	R	LM	EC	FC	CR
Institutional Depth	1							
Policy Scope	.88	1						
Fiscal Autonomy	.74	.85	1					
Representation	.93	.87	.73	1				
Law Making	.60	.61	.62	.54	1			
Executive Control	.63	.75	.60	.58	.67	1		
Fiscal Control	.50	.52	.44	.43	.73	.52	1	
Constitutional Reform	.58	.60	.59	.52	.71	.50	.80	1

Note: N=1603. ID=Institutional Depth; PS=Policy Scope; FA=Fiscal Autonomy; R=Representation; LM=Law Making; EC=Executive Control; FC=Fiscal Control; CR=Constitutional Reform

**Table B.4: Countries, Start of Measurement (through 2006),
Minimum, Mean, Maximum Value on Regional Authority Index**

Country	Start	Min	Mean	Max	Country	Start	Min	Mean	Max
Australia	1950	18.02	18.32	19.40	Lithuania	1992	.00	3.20	4.00
Austria	1955	17.00	17.44	18.00	Luxembourg	1950	.00	.00	.00
Belgium	1950	14.00	22.33	32.07	Macedonia	1991	.00	.00	.00
Bulgaria	1991	1.00	1.00	1.00	Malta	1964	.00	.00	.00
Canada	1950	22.60	22.63	22.65	Netherlands	1950	13.50	13.73	14.50
Croatia	1991	.00	7.75	10.00	New Zealand	1950	.00	6.00	9.00
Cyprus	1960	.00	.00	.00	Norway	1950	4.00	7.37	10.00
Czech Republic	1993	.00	3.50	7.00	Poland	1990	2.00	4.82	8.00
Denmark	1950	4.14	7.90	10.19	Portugal	1976	2.54	3.43	3.59
Estonia	1992	.00	.00	.00	Romania	1991	6.00	8.81	11.00
Finland	1950	1.09	2.57	7.11	Russia	1993	15.66	17.50	19.00
France	1950	6.00	10.77	16.00	Slovakia	1993	.00	2.57	6.00
Germany	1950	28.42	29.15	29.47	Slovenia	1990	.00	.00	.00
Greece	1950	1.00	3.14	10.00	Spain	1978	10.04	20.25	22.14
Hungary	1990	8.00	9.24	10.00	Sweden	1950	10.00	11.29	13.50
Iceland	1950	0.00	.00	.00	Switzerland	1950	19.50	19.50	19.50
Ireland	1950	.00	1.49	6.00	Turkey	1950	1.00	4.23	5.00
Italy	1950	8.35	13.63	22.74	United Kingdom	1950	4.69	9.06	9.93
Japan	1950	8.00	8.25	10.00	United States	1950	23.08	23.14	23.20
Latvia	1990	.00	.00	.00					

Table B.5: Country Overlap Between Datasets

Country	Lijphart	Arzaghi-Henderson	Brancati	Panizza	Stegar-escu	Country	Lijphart	Arzaghi-Henderson	Brancati	Panizza	Stegar-escu
Australia	X	X		X	X	Lithuania			X		
Austria	X			X	X	Luxembourg	X			X	X
Belgium	X		X	X	X	Macedonia					
Bulgaria						Malta	X			X	
Canada	X	X	X	X	X	Netherlands	X	X		X	X
Croatia						New Zealand	X			X	X
Cyprus				X		Norway	X		X	X	X
Czech Republic						Poland		X	X		
Denmark	X			X	X	Portugal	X			X	X
Estonia			X			Romania		X	X		
Finland	X		X	X	X	Russia		X			
France	X	X		X	X	Slovakia					
Germany	X	X		X	X	Slovenia			X		
Greece	X	X	X	X	X	Spain	X	X	X	X	X
Hungary		X				Sweden	X		X	X	X
Iceland	X			X	X	Switzerland	X		X	X	X
Ireland	X			X	X	Turkey		X	X		
Italy	X	X		X	X	United Kingdom	X	X	X	X	X
Japan	X	X			X	United States	X	X	X	X	X
Latvia											

Note: Countries listed are those for which we have Regional Authority scores and data for all independent variables.

B.6. Robustness Analysis Controlling for Regional Tiers

Country scores are obtained by aggregating scores for each regional tier in a country. The first two columns of the table below model the Regional Authority Index with the *Number of Tiers* included as a control. Despite the strong association between *Population* and *Number of Tiers* ($r = 0.67$), *Population* retains significance, and is the most significant variable when its high VIF is taken into account. The third column treats the number of tiers as the dependent variable and shows that *Population* and *Regional Parties* are significantly associated with the number of tiers under controls.

Table B.6: Number of Tiers as Independent & Dependent Variable

Dep Var —	Regional Authority Index VIF		Number of Tiers
Population	3.37 (1.88)	3.40	0.65 (0.18)
Area	1.41 (1.19)	1.99	-0.05 (0.08)
Ethnicity	10.89 (4.67)	1.27	0.17 (0.31)
Inequality	-3.43 (5.26)	1.75	-0.14 (0.54)
Affluence	1.45 (0.78)	1.12	0.10 (0.07)
Democracy	1.32 (0.33)	1.25	0.04 (0.03)
Regional parties	11.26 (3.34)	1.41	1.13 (0.35)
Number of tiers	3.55 (2.01)	2.11	—
<i>Constant</i>	-42.59 (12.49)	—	-4.29 (1.05)
<i>R</i> ²	0.65		0.53
<i>F test</i>	29.66***		14.72***
<i>Mean</i>	1.79		
N (clusters)	1603 (39)		1603 (39)

Note: Non-standardized beta coefficients, robust standard errors clustered on country in parentheses.